

# Technology

## *Voices*

# Weapons of Mass Instruction



They include iPads and iPods, smartphones and laptops. They already cost far less than more specialized technology and their price is dropping still further. But their potential to help change the course of U.S. K-12 education is limitless and their educational impact could soon include nearly every American child, including those with disabilities, according to noted education researcher and author Milton Chen, who calls these increasingly ubiquitous devices, “weapons of mass instruction.”

Dr. Chen, the former longtime executive director of the George Lucas Educational Foundation (GLEF) (<http://www.edutopia.org/>), current GLEF senior fellow and author of *Education Nation: Six Leading Edges of Innovation in Our Schools* (Jossey-Bass 2010), declares, “As educators, we have spent so much time and energy debating the pros and cons of technology, yet technology is not yet universally adopted and teacher support for the technology trickling into our schools is generally not yet adequate.”

While this tug of war continues, he says, “technology evolves and becomes better and better, faster and faster, cheaper and cheaper – and in an exponential

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*Milton Chen, Ph.D., Senior Fellow, George Lucas Educational Foundation; Author, “Education Nation: Six Leading Edges of Innovation in Our Schools.”*

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way, not gradually.”

The major advantages of these burgeoning technologies, he continues “are their declining price points and their ability to provide very powerful devices for students who don’t require specially made educational technology. There have been efforts to create a special computer for students with severe disabilities, but consumer tech manufacturers are producing devices that can be provided to general and many special education students for hundreds of dollars less on a massive scale.”

These technologies, he remarks, are needed and affordable now. “Instead of spending \$8,000-\$10,000 per year on specialized technologies, amortized over a device’s 3-4-year lifespan, we can spend \$250 per student per year. That’s the cost that the Maine Laptop Project (<http://www.mcmel.org/MLLS/>) points to for its fully functional laptops.”

Students with disabilities that are less than severe can benefit greatly from advances in consumer technology, he notes, once educators and others agree on the most appropriate ways to employ the technology. In any case, he predicts, education, like many businesses and the healthcare field, is rapidly approaching an era in which all information for all students will be digital.

### **Milton Chen, Ph.D., Speaks**

Milton Chen is among the nation’s most visible commentators on education innovation and the use of education media. His book, *Education Nation*, is rooted in the following “six leading edges of innovation”:

1. The thinking edge – which calls for a reevaluation and an upgrade of the U.S. system of K-12 education
2. The curriculum edge – which urges modernization of what and how children learn
3. The time/[place] edge – which advocates maximization of all learning opportunities including and beyond the traditional school day

ization of all learning opportunities including and beyond the traditional school day

4. The technology edge – which urges the introduction of up-to-date special and consumer technologies into learning environments
5. The co-teaching edge – which encourages including experts from the community in the teaching process
6. The youth edge – which urges recognition of generational differences between students, educators and society

Before his association with GLEF, which began in 1998, Dr. Chen was the founding director of the KQED (PBS) Center for Education & Lifelong Learning in San Francisco, delivering educational services for teachers, parents and community service groups in support of public TV programming; director of research at Children’s Television Workshop, and an assistant professor at the Harvard University Graduate School of Education.

Dr. Chen earned his undergraduate degree in social studies from Harvard College and an M.A. and Ph.D. in communication research from Stanford University.

His career’s pivotal moment, he recalls, “was arriving at Harvard a year after *Sesame Street* swept the nation in the fall of 1969. I met Professor Gerald Lesser, a Harvard education professor who was the curriculum advisor and chaired the advisory group for what was then called the Children’s Television Workshop, now Sesame Workshop. He had formed a Center for Research in Children’s TV. I began working with his center on formative research for a new series called *The Electric Company*. Thus, I was bitten by the bug of educational media and technology as a college sophomore.

“Dr. Lesser passed away last fall and we just had a wonderful celebration of his life and legacy at Har-

ward. I hope I'm, in some sense, paying forward the gifts he gave me and the doors he opened for me.

"I've always been an enthusiast for educational media and technology and for how AT can help all learners. I like to say that technology gives us 'wheels for the mind,' to help us navigate the paths of learning more naturally.

"Long term, I expect the technology trend of more and better devices to continue, helping all learners learn more effectively and at a lower cost. I'm particularly excited about new interfaces beyond the QWERTY keyboard and advances in speech recognition software to talk to our computers."

Dr. Chen is pleased that the convergence of assistive, educational and consumer technology is resulting in the inclusion of more students with special needs in general education classrooms, spawning diversity which he believes is beneficial to all students.

"When my daughter was in elementary school one of her classmates was a young girl with Down syndrome. It was terrific for that girl to be in a general education classroom and equally terrific for her classmates, who were able to interact with her. My daughter never forgot that experience. Experiences like that also engender compassion among children for others with different backgrounds, which is a missing element in much of today's discussion about education.

"At the same time, technology brings the ability for kids to work in smaller groups, in teams, so that full group instruction is not the only or dominant form of classroom instruction. I hope that for students with special needs there would be instances when those special needs are addressed in a smaller group or individually."

Supporting our interview with Dr. Chen are

re-sources related to the use of assistive and consumer technologies in the classroom and spotlight descriptions of relevant organizations. Please share this newsletter with families, teachers, disability professionals, and groups that may benefit from it. We invite you to visit us at <http://www.fctd.info>. We welcome feedback, new members and all who contribute to our growing knowledge base.

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Thank you to those who participated in the study led by Dr. Howard P. Parette of ISU's SEAT Center of family needs for, and patterns of accessing, technology-related information for children with disabilities. The study results have been published in the December 2010 issue of

*Education and Training in Autism and Developmental Disabilities*  
"Supporting Families of Young Children with Disabilities Using Technology"

Howard P. Parette, Hedda Meadan,  
& Sharon Doubet  
Illinois State University

Jackie Hess  
Family Center on Technology and Disability

[http://cec.findeight.com/Portals/0/CEC/Autism\\_Disabilities/Research/Publications/Education\\_Training\\_Development\\_Disabilities/2010v45\\_Journals/ETDD\\_201012v45n4p552-565\\_Supporting\\_Families\\_Young\\_Children\\_Disabilities\\_Using\\_Technology.pdf](http://cec.findeight.com/Portals/0/CEC/Autism_Disabilities/Research/Publications/Education_Training_Development_Disabilities/2010v45_Journals/ETDD_201012v45n4p552-565_Supporting_Families_Young_Children_Disabilities_Using_Technology.pdf)

# On the Threshold of the Universal Digital Classroom

An Interview with Milton Chen, Ph.D.,  
Senior Fellow, George Lucas Educational  
Foundation; Author, “Education Nation: Six  
Leading Edges of Innovation in Our Schools.”

Although the convergence of consumer technology with assistive and instructional technology has placed the spotlight on widely-available, lower-priced devices as the key to the digital classroom, some of the best examples of learning technology, according to Milton Chen, are assistive technologies.



Milton Chen, Ph.D.

“The metaphor of the digital curb cut demonstrates that tools we believed would be especially effective for students with disabilities will migrate, because of the malleability of technology, to become mainstream learning technology.”

## Technology Curb Cuts for an Era of Digital Learning

For example, he explains, “the use of text-to-speech readers and speech-to-text translation can help students with limited vision or who are blind, and kids who are deaf or hearing impaired. These tools have become effective for and available to a much broader range of students than originally intended. For instance, for students with limited mobility there are special interface devices that are used, such as joysticks instead of keyboards. Students with limited vision can now access text of varying sizes. This same ability accrues to those of us who are aging and now need larger text.”

He points to the more widespread use of intelligent text. “If students are reaching for a word, that word can be spoken to them. Or hints can be provided about the word’s pronunciation. The word can also be spoken to students in a language that’s familiar to them so that they can make the transition to English. All of these are of great benefit to English language learners (ELL) as well as to other students experiencing difficulties not necessarily related to or formally termed as ‘disabilities’ but nevertheless inhibit learning in the classroom.”

## George Lucas: “We All Have Special Needs”

Everybody, he insists, “has abilities – and disabilities. I like the multiple intelligence approach: if a student is strong in kinesthetic intelligence he/she may not be strong in verbal intelligence. We don’t categorize that imbalance as a disability, but there are ways of addressing more of a student’s multiple intelligences, thereby helping the student to improve in the areas in which he/she is not naturally strong.”

Dr. Chen learned this perspective, he says, from his mentor, filmmaker George Lucas of Star Wars fame, whose education foundation Dr. Chen headed for 12 years. “George Lucas had a marvelous way of putting it. He said that ‘we all have special needs.’ His vision of a future classroom is one in which a visitor can’t tell which students have disabilities and which do not. In George’s vision, all those students would be performing at a high level, supported by malleable technologies they all use.”

## Technology: the Digital Classroom’s Crucial Underpinning

“Technology is the platform, the crucial underpinning, for the other five edges of innovation I’ve cited in my book,” declares Milton Chen, whose book, *Education Nation*, outlines a blueprint for achieving full



digital learning. “Technology is the way to access, create and share the information that is the lifeblood of the learning process.

“We’re quickly moving to a system in which all information will be digital. That transition process from analog to digital is already well underway in other sectors of our economy and society in which all the information that is being handled, shared and communicated, is digital in form. There are many influential individuals and groups in education who want our school systems to make that transition more quickly.”

Such a transition, he explains, is especially pivotal for 21st century learners. “One of the most important skills they can acquire is the ability to locate and access the most appropriate information. That information is now on the Web and not in their textbooks. That information should be in digital form for students, teachers and school systems.”

Making information accessible on the Web is only part of the digital transition, he adds. “Equally important is the creation of devices for users.”

### **The Balance Begins to Tip: Rocking the Classroom with Technology**

In school districts nationwide, he insists, technology advocates and pioneers are becoming more numerous. Consequently, he adds, “the balance is beginning to tip toward a digital approach to learning and in favor of a younger generation of technol-



ogy users – digital teachers – who see the benefits of digital classrooms and who understand that students need this approach to develop the right skills in preparation for their eventual entrance into the workplace.”

However, he notes, some of the most effective and persistent advocates of technology use in schools, “are older teachers who are career changers who have used the full range of technology in their previous careers and are accustomed to having access to it.”

Career changers, he points out, are not the only group of older teachers who have embraced digital learning concepts. “There are older teachers who, once they realize the benefits of technology and become proficient in its use, are among the most vociferous and effective advocates for technology utilization. These teachers have set aside 20-25 years of ingrained habits when they see the excitement that technology holds for their students.

“I first encountered that enthusiasm about five years ago when I met a group of veteran teachers at a Google Teacher Academy in Santa Monica. Younger teachers were demonstrating Google Earth (<http://www.google.com/earth/index.html>), for example, and Google Docs (<http://www.google.com/google-ds/bl.html>). But in the audience were several older teachers who already knew about these sites and how to use them, and were very enthusiastic. Some older teachers are already rocking the classroom with technology. Age is just a number!”

Nevertheless, the major push toward a universal digital classroom is expected, not surprisingly, to be generated, he says, by the influx of digital natives into the ranks of new teachers.

“They are accustomed to using this technology as a



matter of course in their daily lives, especially for purposes of communication. Although they may not have used it much in the schools of education from which they are emerging, they're acutely aware of its benefits, which include much faster communication and the ability to quickly organize information that is instantly accessible."

As a result of these positive developments and ongoing trends, Dr. Chen predicts, "the balance is tipping in favor of digital teachers. Last year was the first year when it really began to tip. This is not a gradual development. Over the next few years we will see more change in this regard than has occurred in the past 10 years. As Malcolm Gladwell wrote in his book, *The Tipping Point*, when things begin to tip, they tip fast."

### Classroom Technology: the New Civil Right

Key to the speed at which the digital balance will tip, he claims, is the rapidity with which students can be equipped with the most appropriate technology.



"The most important technology advance will occur when we provide each student with a mobile, Internet-enabled device," Dr. Chen says. "This device might be a laptop for older students, or maybe an iPod Touch for younger students."

The cost of such devices, he notes, "is now much more affordable than 3-5 years ago and the quality of Web content is amazing across the subject areas. As a nation, we cannot permit the digital divide to widen and allow those without access to continue to fall further behind. Just as the schools have provided a textbook for each student as part of equal

educational opportunity, the new educational civil right for all students is access to technology and the modern tools of learning."

### "Our Students Have Two Lives"

Current school policy regarding the use of consumer technology devices in classrooms often separates students' use of technology in their daily lives from its permitted use in a learning environment, according to Dr. Chen.

"Students have to shut off the equipment that connects them to each other and to their world as they enter the classroom. They're not permitted to bring their cellphones, smartphones, iPads and similar devices to school. The schools' very understandable position generally is, 'If even one student lacks this equipment we cannot allow any student to use it in class.'"

The more enlightened approach, he explains – "and some schools are doing this – is for teachers to announce to students, 'If you have technology that you enjoy using, bring it in; it's important that other students see these devices and for you to share what you know. Maybe they can get some experience with the device and that can lead us to determine how that device can best be used in a classroom setting so that perhaps we can acquire several of them to be shared.'"

"[Director of the U.S. Department of Education's Office of Educational Technology] Karen Cator says, 'Our students have two lives. One life is the technology-enabled life they live outside the classroom. The other, within the classroom, is often tech-deprived. We want students to have one life, not two; not a digital life outside of school and an analog



life in school. We want them to lead one digital-enabled life all the time, in school and out.'

"That duality saps motivation and, in fact, is disabling to many students, including those with disabilities. One of the real reasons why one-third of our students fail to complete high school – including half of our students of color – is that their schools do not relate to their lives in any meaningful way. Surveys have borne this out. Their schools are so irrelevant to their own interests that the some schools become little more than holding pens for them.

"These students are unable to connect. Employing the student-centered approach, I'd like to sit down with these students who are bored and about to drop out or have dropped out and have returned to school into a continuation high school, and ask, 'What are you interested in? What would you like to do?' Then take the kernel of information gleaned from their responses and build it out into a personal curriculum. If a student is interested in fashion, in music, in sports, a curriculum could be constructed around that interest, across the subject areas."

### The Multiple Pathways Approach

According to Dr. Chen, this is the Multiple Pathways approach, sometimes called Linked Learning. "For example, let's say there's a student who wants to work in business but he/she does not see a path to that destination. In the multiple pathways/linked learning high schools (<http://www.connect-edcalifornia.org/pathways/index.php>) students get an opportunity to experience the workplace, to spend time in companies that are of interest to them and are learning in a redesigned curriculum the skills that will get them there."

The challenge of this approach, he emphasizes, "is to provide the Pathways experience to students di-

agnosed with special needs." Of course, he admits, students with the most severe disabilities could not be accommodated, "but those whose disabilities are milder could be brought into these programs. The continuing question, however, is whether kids with far more significant cognitive disabilities can be provided a pathway forward."

### Areas of Reform

How can the barriers impeding the advance of educational/instructional technology be surmounted? Dr. Chen sets his sights on policy formulation among state boards of education and governors as well as local school boards "to remove some of the policy obstacles hindering a more creative, technology-fused classroom curriculum. Sometimes this is a matter of simply removing outmoded restrictions already on the books and, to the extent possible, revising how funds are spent. For example, instead of paying for paper textbooks, many more districts are examining the cost and then moving toward digital."

When it comes to curriculum, he adds, redesign may be in order. "For example, the days are gone when biology should be taught as a survey course for ninth graders, a concept that's been entrenched for decades. For 50 years the sequence of courses, and the kinds of courses, have remained in place. Scientists now say, however, that the biological sciences have progressed enormously over the past 40 years, especially in the past 10 years."

Scientists, he continues, "want students to learn current science, not the science that was learned four decades ago. As a result, there are integrated sciences around biology, chemistry and technology and genomics research. Scientists want students to be exposed to the excitement of contemporary science. Many scientists insist that we as educators should turn that layer cake approach to the teach-

ing of first-year biology, second-year chemistry, maybe third-year physics and flip it so that physics is taught to ninth graders. There are those who will complain, ‘Physics used to be the course for the most advanced science students; isn’t that terribly difficult for ninth graders?’”

In fact, however, “the laws of physics have not changed in the past 40 years. So this does require rethinking subjects that we believed were difficult or easy. Most of these designations have less to do with the content of these courses but instead with the way these subjects have been taught.”

Co-teaching is another innovation edge, according to Dr. Chen. “The model of a teacher standing in front of 30 students arrayed in rows, whom the teacher is lecturing, goes back at least 100 years. Now we want teachers to summon current expertise, which means adopting the co-teaching model, bringing in experts from the community. For example, I’ve become acquainted with several situations in which architects have worked with students, as well as engineers and local poets and writers. Co-teaching helps make learning more engaging, to see individuals who are using the skills the students are supposed to be learning.”

Co-teaching, he adds, also helps contemporize the learning environment by bringing in the expertise of a modern scientist, for example, or a modern architect. “The teacher is presenting real-time professional development learning about the skills required for success in a contemporary office environment or a factory.”

Dr. Chen also advocates reform around the learning day. “The old model is a six-hour school day, five days a week, 31 weeks a year, 180 school days annually. Now, with information online and digital, learning can happen anytime, anywhere, 24/7.

There are many school systems, in partnership with the after-school networks funded by the U.S. Department of Education and state education agencies, that are redesigning the learning day, week, month, and year. This is one of the most exciting areas of reform.

“We should no longer confine learning to a six-hour school day. Some students don’t even get that six hours because they lack access to technology in the redesigned curriculum and need to wait until after school, or maybe even the summer, to gain sufficient access.”

His hope, he says, “is that as part of the overall reform we also reform the time at which students are learning and develop more learning time. Students from other nations are spending much more time in academic work. But we also need to ask the question, what kind of academic work? Often what those international students are doing is academic drill and practice, which makes them very proficient at test-taking, which we see in Singapore and China, for instance.”



In the U.S., however, “we have the potential to create a new 21st century learning system combining the best attributes of the traditional methods with new approaches. We need to redirect how students spend their time by repurposing social media like Facebook and Twitter for educational purposes. For kids with and without disabilities, more of the time spent on social media could be devoted to learning by utilizing those very same – but repurposed -- media.”



## Challenge: Keeping up with the Possible

One of the most significant challenges facing educators and technology use, he states, “is keeping up with what is now possible. I’m very active in the field of educational technology but it is a strain for me to keep with developments.” Another challenge: disseminating the relevant information to key individuals in the field on a need-to-know basis. Those individuals, he says, include educators, parents, policy makers and community leaders.

“What’s possible now has changed very much from what was possible even as recently as 2-3 years ago.” For instance, he comments, “it’s hard to believe that YouTube is only about six years old. YouTube certainly represented a tipping point in education. YouTube was first a rumor and then a news story for its first two years and then it took off. It’s now become THE platform for sharing information. Initially, we posted documents on YouTube and now short films are posted.”

One of his favorite projects, he says, is San Diego’s iRead Project (<https://sites.google.com/a/eusd.org/eusd-iread/>). “This is a project that could certainly be used for the benefit of students with disabilities as well as those who are reluctant readers, those who mainly come from families in which English is not the first language.”

The iRead process, he explains, consists of attaching a small microphone to an iPod, an iPod Touch or an iPod Touch with Web access. “A student’s ability to record herself changes the nature of the reading experience. Students can listen to themselves, to the teacher, and to each other, creating a community around this learning.”

## Through a Glass

To move faster toward a universal digital learning environment, Dr. Chen says, “we can take lessons

from other sectors, including banking and finance, healthcare or entertainment. In many ways our work in education at the Lucas Foundation takes a page from the way in which the entertainment industry now embraces digital tools for production of films and music.”

Thirty years ago, for example, “no one in the entertainment business conceived what we today take for granted, that computers could be used for editing, that technology could be used to create visual effects and scenes, or for music composition, recording or editing. The evolution of technology in the entertainment industry is very analogous to education today, where at some point in the near future we will witness the same steady and rapid acceptance of technology in areas where it has never before been considered.

“This will be true in education as well but we remain at the early stage, when educators and others are debating whether all students should have a digital platform of their own or even if that is desirable.”

To those in education who may not yet be on board with this concept, Dr. Chen asks: ‘Do you use a computer? Would you like to share your computer with five other people, because 5:1 or 6:1 is the current student-to-computer ratio?’ I ask, ‘How can you deny digital learning technology to students, especially when up to 90% of those students may be carrying their personal smartphones?’”

## A National Movement?

During the five months since his book was published, Dr. Chen has traveled to several states and has sensed the beginnings of what



he perceives to be a national movement. “Nation-wide, there are teachers, principals, school board members and others who are part of a shared movement rooted in changing and redesigning the classroom experience and the use of technology for all students, including those with disabilities. When I’ve encountered this movement I’ve found many more areas of common interest than differences, which is greatly encouraging to me.”

Yet, he cautions, “while there is growing interest, we have yet to see wide acceptance of a mass adoption of technology. I’m hoping that in the next three years we’ll see many more one-to-one programs on the Maine model. Many states and districts are considering them, but Maine appears to be the only state in which every middle school student has a laptop. I give that state’s governor, Angus King, credit for being one of the very few governors who have found a way to provide this technology to all students.”

Dr. Chen has selected three years as the target time-frame, he says, “because change, when it occurs, can happen fast, even in realms where, historically, change has come very slowly, as in the Middle East or in education.”

During this school year, “in the midst of this recession and the consequent steep decline in school budgets, several states are looking at ways to provide an education that is better, less expensive and in an accelerated form for our students.”

## Century 21, Year One

When it comes to education, he says, “2010 is the first year of the 21st century. Last year may have been the critical juncture of time and circumstance: the recession, combined with improvements in technology and change in mindset after 10 years of No Child Left Behind. Educators, families, political

leaders and others seem more willing to think differently about education; including special education. The technology has matured and is generally much more cost-effective.”

His “bet” on technology, he declares, “is that it is a way to accelerate change. “What has occurred in Egypt, for instance, would not have happened had it not been for Internet tools. To me, it’s not a stretch to assert that due to the declining cost and pervasiveness of technology, we could begin to implement much broader change in education at a much faster pace than ever before.”

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## FCTD’s 2011 AT Resources CD-ROM



We’ve been dazzled by the response to the FCTD’s 2011 Assistive Technology Resources CD-ROM. The CD, which provides thousands and thousands of AT-related articles, discussion transcripts, training materials, guides, and links to free online materials, was released in January and all 5,000 copies were distributed by mid-February. To those of you who have requested bulk shipments since then, we’re pleased to report that we’ve ordered another 5,000 and will send them to you as soon as we receive them. Thanks for your patience!

To order the CD, please visit  
[http://www.fctd.info/show/order\\_form](http://www.fctd.info/show/order_form).

## RESOURCES

### ARTICLES

#### From Some Teachers, Excitement about Classroom Tech

By Joshua Brustein

New York Times (November 21, 2010)

The reporter describes the newspaper's "Your Brain on Computers" series on how computers have impacted the lives of many individuals, including the classroom lives of teachers. Although some teachers express concern that heavy computer use, including smartphone and MP3 player use, has conditioned students to value instant gratification and constant stimulation over learning, other teachers choose to utilize those and other mobile web-enabled devices in their classrooms, altering a way of teaching that has been entrenched since the early 20th century. To some extent, the series found, teachers view the implementation of classroom technology as a way to instill more interest in education among digital natives. Teachers also said that tools for on-line communication, coupled with mobile devices, enabled them to offer students alternative ways of interacting and collaborating on projects. Blogs and social networks, the series found, make students more likely to be engaged in class material at home while Skype has transformed the pen pal concept for the digital age.

<http://bits.blogs.nytimes.com/2010/11/21/from-some-teachers-excitement-about-classroom-tech/>

### WEBSITES

#### Mobile Learning 4 Special Needs

Wikispaces (October 2010)

This wiki is administered by Apple Distinguished Educators who focus on the educational benefits derived from the use of various mobile devices to enhance the classroom inclusion of students with special needs. The site's apps page reviews appli-

cations used successfully by children with disabilities. Some reviews feature video and tutorials as well as text explanations. An accessories page includes a list of strands, input devices and speakers designed for AAC use, plus other apps for special education purposes. The site's reviewers are teachers or individuals with disabilities. <http://mobile-learning4specialneeds.wikispaces.com/>

#### Kindergarten.com

Kindergarten.com supports children with socialization and language development disorders as well as children who are non-verbal. The site provides a basic explanation of the verbal behavior (VB) research upon which the products it sells are based. It discusses the need to build a child's motivation to make a connection between the value of a word and the word itself.

The organization's products are designed to be used with the iPhone or iTouch; applications can be purchased and downloaded from iTunes. The apps are arranged according to the following categories: Problem Solving; Rhyming Words, What Doesn't Belong, and Which Go Together; Flash Cards: Actions; Alphabet; Earth Science; Emotions; Fruits/Nuts, Musical Instruments; Sports; Things You Eat, Play With, and Wear; Vegetables; Vehicles; and Zoo Animals. Listening Lotto utilizes animal sounds, household noises and musical Instruments. Receptive Identification teaches children to respond to instructions by using effective listening skills. <http://kindergarten.com/welcome/>

#### Read the Words.com

This free text-to-speech online service generates a clear audio file with a wide range of written material. A voice is produced that reads aloud the words users request by submitting written text or by copying text from another file and pasting the file into the website's text box. Users choose from

among 15 voices to create their recordings. A toolbar is available for Internet Explorer and Firefox to help users access their accounts without visiting the website. The site supports podcasts, blogging, and embedded recordings for web pages. Readers read Spanish and French as well as English. Users may upload any Microsoft Office, Adobe PDF, txt, and HTML document. <http://www.readthewords.com/>

### **mrcoley.com**

Developed by Brent Coley, a 5th grade teacher in California, the website - a multimedia resource for his students and their parents - features the students in webcasts showcasing what they have learned each week. Highlighted are student achievements, classroom projects, and the "student of the week." The site provides sections for each subject taught by Mr. Coley. Each week a student serves as a roving reporter to record the events of the day's class. Using a computer at home or one of the classroom's Neo 2 word processors, students submit their articles electronically to Mr. Coley who then uploads the articles to The Daily Blog. A science and social studies StudyCast helps students review for upcoming tests. StudyCast broadcasts are not intended to replace traditional studying, but rather to provide an additional study aid and can be heard by students on the website or via iTunes. Mr. Coley creates PowerPoint presentations that serve as digital flash cards to help students review concepts studied in class. The flash cards can be downloaded onto virtually any mobile device. <http://www.mrcoley.com/index.htm>

## **VIDEOS**

### **Teachers' Views on Technology in the Classroom** New York Times (November 20, 2010)

In these eight videos - including one on assistive technology produced by the Kildonan School in

Amenia, NY -- which augment the New York Times' series, "Your Brain on Computers", teachers describe how the use of technology has changed their teaching methods.

<http://www.nytimes.com/interactive/2010/11/21/technology/20101121-brain-teachers.html>

## **APPS**

### **Tap to Talk**

TapToTalk is a Web based application that allows users to transform a Nintendo gaming device DS, DSi or DS Lite into an AAC device. The program can be modified by adding pictures and recorded voice files. The application comes with a card and a subscription to use the Web-based TapToTalk designer. An adapter is included to download albums to the memory card which is inserted in the device. Cost: \$99.95 per year; however, the TapToTalk application for iPhone or iPad is free. <http://www.taptotalk.com/>

### **vBookz**

Designed for children who are learning to speak or read or who are visually impaired, this text-to-speech reading app for the iPhone, iPod Touch or iPad provides access to over 30,000 free books. Reading process controls allow adjustment of voice and reading speed. Text or PDF files are convertible to ePublications for upload to iTunes. Cost: \$3.99. <http://vbookz.com/v1/Home.html>



## KNOWLEDGE NETWORK MEMBERS

### George Lucas Educational Foundation (GLEF)

**WHAT WORKS IN EDUCATION**  
**THE GEORGE LUCAS EDUCATIONAL FOUNDATION**

The Edutopia website, which focuses on the use of digital media to improve K-12 learning as well as to document, disseminate and advocate replicable learning strategies, is the GLEF flagship. The foundation's approach to digital learning revolves around the following core strategies:

- Project Learning, a rigorous, hands-on approach to core subject matter that emphasizes activities that spotlight real-world issues
- Social and Emotional Learning, in which students learn to communicate and collaborate while resolving conflicts
- Technology Integration, using technology tools to support active engagement, participation in groups, frequent interaction and feedback, and connection to real-world experts
- Teacher Development, programs that offer mentors and ongoing instruction to teacher candidates and newly certified teachers
- Comprehensive Assessment, which supports multiple learning styles via portfolios, presentations and tests
- Integrated Studies, in which academic subjects are presented in an interdisciplinary fashion reflecting modern knowledge.

For more information, contact:

The George Lucas Educational Foundation  
PO Box 3494

San Rafael, CA 94912-3494

<http://www.edutopia.org/mission-vision>

### Northeast Regional Resource Center (NERRC)

NERRC is one of six Regional Resource Centers (RRCs) funded by the U.S. Department of Education's Office of Special Education Programs (OSEP) to provide special education technical assistance to state departments of education and lead agencies for the Individuals with Disabilities Education Act (IDEA) early intervention program (Part C). NERRC provides technical assistance and IDEA implementation support to state education agencies in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont. NERRC coordinates a number of regional workgroups which give state staff a forum to discuss current issues, share promising practices, and exchange information of relevance to the education of children with disabilities and the implementation of IDEA.

For additional information, contact:  
Northeast Regional Resource Center (NERRC)  
Learning Innovations at WestEd  
20 Winter Sport Lane  
Williston, VT 05495  
Phone: (802) 951-8218; (802) 951-8213 (TTY)  
Fax: (802) 951-8222  
[kreedy@wested.org](mailto:kreedy@wested.org)  
[www.rrfcnetwork.org/nerrc](http://www.rrfcnetwork.org/nerrc)



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### National Education Technology Standards Project (NETS) Project

The National Educational Technology Standards



(NETS) Project is an ongoing initiative of the International Society for Technology in Education

(ISTE). The NETS Project supports the formulation of national standards for educational uses of technology. The project defines standards for students, teachers, and administrators. The NETS are not subject-specific, but instead address a range of critical thinking, cooperative teaching and learning, technology implementation and other skills. For additional information, contact:

National Educational Technology Standards Project  
ISTE

1710 Rhode Island Ave NW, Suite 900

Washington, DC 20036

Phone: (866) 654.4777 Fax: (202) 861.0888

Contact: Jayne James, EdD, Senior Director of Education Leadership

Email: [jjames@iste.org](mailto:jjames@iste.org)

<http://www.iste.org/standards.aspx>

### Special Education Technology Center (SETC)

Housed at Central Washington University, SETC provides collaborative technology planning for specific students whose disabilities require AT to receive a free and appropriate education (FAPE). The center also features a lending library of toys, switches, augmentative communication devices, alternate keyboards and other computer input devices, environmental control devices and software designed for students with special needs. Staff development is provided on topics including assistive technology overview, augmentative communication, alternate computer input, software solutions and environmental control.



For more information, contact:

400 East University Way, WA 98926

Phone: (509) 963-3350 Fax: (509) 963-3355

Contact: Jerry Connolly, Director

Email: [connolly@cwu.edu](mailto:connolly@cwu.edu)

<http://www.cwu.edu/~setc/index.php>

### Technology for Education



Technology for Education (TFE) is a computer technology company that specializes in assistive technology and learning products for professionals, educators and others who work with young children and people with special needs. For further information, contact:

4131 Old Sibley Memorial Hwy Ste 200

Eagen, MN 55122

Phone: (800) 370-0047 or (651) 457-1917

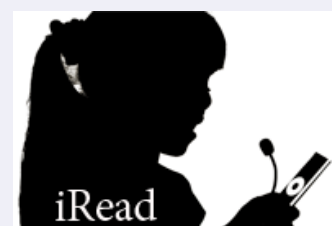
Fax: (651) 457-3534

<http://www.tfeinc.com/about/>

### EUSD iRead Project

Formed by teachers in the Escondido Union School District (EUSD), iRead focuses on the use of digital audio as a learning tool for all students. iRead teachers employ digital audio devices and software such as iPods, Garageband (<http://www.apple.com/ilife/garageband/>), iTunes and Keynote (<http://www.apple.com/ipad/features/keynote.html>) to improve reading processes. Teachers meet on a monthly basis to exchange ideas and strategies. In December, 2010, iRead was awarded a Golden Bell by the California School Boards Association.

<https://sites.google.com/a/eusd.org/eusd-iread/>



### The Education Center

The center offers education and advocacy services that provide children with a safe place where they can use the latest technology. The center also helps parents understand their children's disability-related issues. The Education Center provides



educational therapy, a homework club, advocacy, a social skills group, ADHD coaching, math and science tutoring, and parent training groups. For further information, contact:

The Education Center

25200 Crenshaw Blvd. Suite #203

CA 90505

Phone: (310) 891-1130

Fax: (310) 891-1135

Contact: Carol Behrens, Advocate and Educational Therapist

Email: [carol@ed-center.com](mailto:carol@ed-center.com)

<http://www.ed-center.com/>

## Missed a Recent Newsletter?

It happens. We want to make it easy for you to catch up on recent editions of FCTD Voices. Here are links to PDF versions of our last six editions, with topics and experts identified. If you prefer the HTML versions, they're available on our website at <http://www.fctd.info/newsletters>.

**January 2011: "An OT's Panoramic Perspective"** features Dr. James Lenker, Professor of Rehabilitation Science and director of the advanced graduate certificate program in assistive technology at the University of Buffalo. It focuses on AT device adoption and abandonment, assessment, evaluation, consumer and rehabilitation technology and AT research. <http://www.fctd.info/assets/newsletters/pdfs/286/FCTD-TechVoices-jan11.pdf?1297109033>

**December 2010: "Virtual Worlds: STEM Education Adds a Dimension"** features Robert Todd, Senior Research Scientist at Georgia Tech's Center for Assistive Technology and En-

vironmental Access. It explores the educational potential of virtual worlds, particularly with respect to STEM subjects. <http://www.fctd.info/assets/newsletters/pdfs/285/FCTD-TechVoices-Dec10.pdf?1294617772>

**November 2010: "Blended Learning: A Vision Comes to Life"** features Becky Bordelon from Time To Know, Inc. She discusses her company's approach to blended learning and shares the results they are seeing from their classroom pilot programs. <http://www.fctd.info/assets/newsletters/pdfs/284/FCTD-TechVoices-Nov10.pdf?1291402729>

**October 2010: "Robotics and Autism: Is the Future Nao?"** features University of Notre Dame professors Dr. Joshua Diehl, Dr. Charles Crowell, and Dr. Michael Villano. This edition looks at the work being done by the team and their colleagues, applying the technology of robotics to an applied behavior analysis therapeutic program for children with autism. <http://www.fctd.info/assets/newsletters/pdfs/283/FCTD-News-Oct10.pdf?1288311603>

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